



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
24.10.2007 Bulletin 2007/43

(51) Int Cl.:
H04N 5/232 (2006.01)

(43) Date of publication A2:
17.08.2005 Bulletin 2005/33

(21) Application number: **05250115.2**

(22) Date of filing: **02.01.2005**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR LV MK YU

(72) Inventor: **Kenji Shiraishi**
Yokohama-shi, Kanagawa (JP)

(74) Representative: **Leeming, John Gerard**
J.A. Kemp & Co.
14 South Square
Gray's Inn
London WC1R 5JJ (GB)

(30) Priority: **14.01.2004 JP 2004007154**
03.06.2004 JP 2004166442

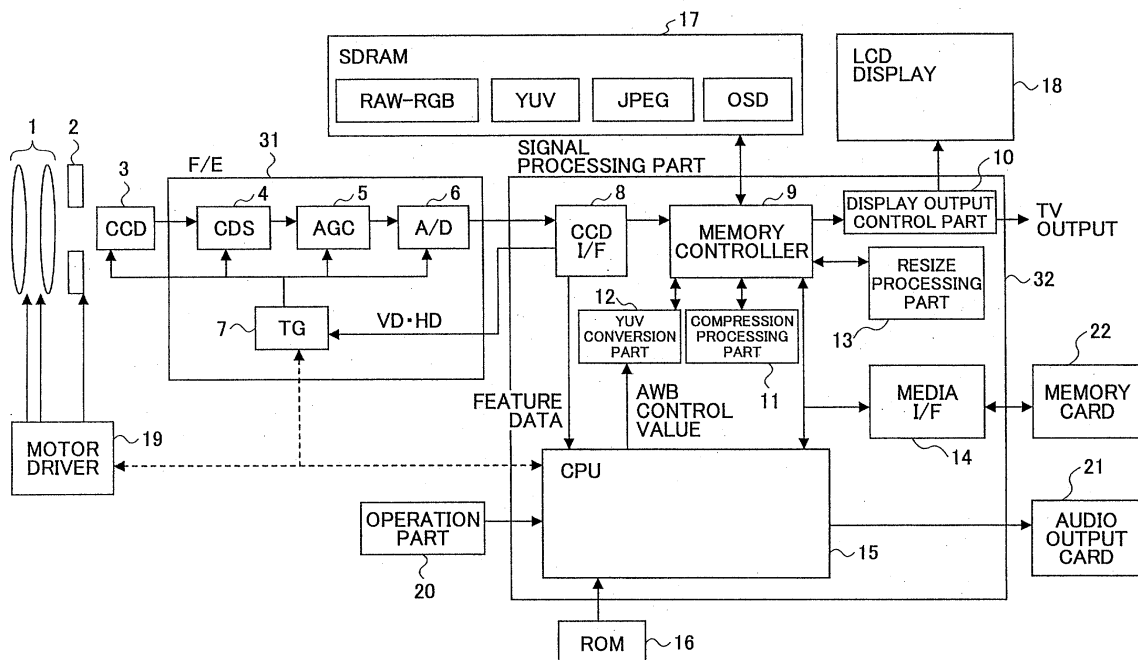
(71) Applicant: **Ricoh Company, Ltd.**
Tokyo 143-8555 (JP)

(54) **Imaging apparatus, a focusing method, a focus control method and a recording medium storing a program for executing such a method**

(57) An imaging apparatus achieves a high-speed automatic focus operation and a reduction in power consumption and prevents a miss focus due to an erroneous determination. The imaging apparatus has an automatic

focus function, which detects a current position of a focal lens. A limited range near the detected current position of the focal lens is designated as a focus range. A movable range of the focal lens is changed in accordance with the designated focus range.

FIG.1





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 25 0115

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	US 6 704 054 B1 (HASHIMOTO HITOSHI) 9 March 2004 (2004-03-09) * column 8, line 18 - column 11, line 5; figures 1-4 *	1-11	INV. H04N5/232
X	-& JP 2000 131598 A 12 May 2000 (2000-05-12) -----	1-11	
X	US 6 184 931 B1 (KANEDA KITAHIRO) 6 February 2001 (2001-02-06) * column 4, line 12 - column 6, line 49; figures 1-3 *	1-12,20, 22	
X	PATENT ABSTRACTS OF JAPAN vol. 006, no. 248 (P-160), 7 December 1982 (1982-12-07) -& JP 57 146227 A (MINOLTA CAMERA KK), 9 September 1982 (1982-09-09) * abstract; figures 1,2 *	1,11	
A	US 5 899 586 A (KAWANAMI ET AL) 4 May 1999 (1999-05-04) * column 3, line 24 - column 5, line 58; figures 1,2 *	1-11	TECHNICAL FIELDS SEARCHED (IPC)
A	US 2003/081137 A1 (YAMAZAKI AKIHISA) 1 May 2003 (2003-05-01) * page 6, paragraph 80 - paragraph 89; figure 13 *	1-11	H04N G02B G03B
A	US 4 284 335 A (TAKEMAE ET AL) 18 August 1981 (1981-08-18) * column 8, line 5 - column 9, line 30; figures 13,14 *	1-11	
		-/--	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 September 2007	Examiner Schinnerl, Arnold
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

3
EPO FORM 1503 03.02 (P04C01)



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2003/197804 A1 (ITO TAKEYOSHI [JP]) 23 October 2003 (2003-10-23) * page 1, paragraph 13 - page 2, paragraph 15; figures 1,2 * * page 2, paragraph 25 - paragraph 26 * -----	12-22	
X	US 4 611 244 A (HANMA KENTARO [JP] ET AL) 9 September 1986 (1986-09-09) * column 7 - column 9; figures 2-5 * -----	12-22	
D,X	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) & JP 2003 262786 A (CASIO COMPUT CO LTD), 19 September 2003 (2003-09-19) * abstract * -----	12-22	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search Munich		Date of completion of the search 13 September 2007	Examiner Schinnerl, Arnold
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-11

Designating a limited focus range near the current position of the focal lens.

2. claims: 12-22

Narrowing the movable range of the focal lens when a picture is taken in the macro mode and when a predetermined condition is satisfied.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 25 0115

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-09-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6704054 B1	09-03-2004	JP 2000131598 A	12-05-2000
JP 2000131598 A	12-05-2000	US 6704054 B1	09-03-2004
US 6184931 B1	06-02-2001	NONE	
JP 57146227 A	09-09-1982	NONE	
US 5899586 A	04-05-1999	JP 9211298 A	15-08-1997
US 2003081137 A1	01-05-2003	JP 3797543 B2	19-07-2006
		JP 2003131121 A	08-05-2003
		US 2006109369 A1	25-05-2006
US 4284335 A	18-08-1981	JP 1482605 C	27-02-1989
		JP 54113334 A	04-09-1979
		JP 61020845 B	24-05-1986
US 2003197804 A1	23-10-2003	JP 3955493 B2	08-08-2007
		JP 2003319237 A	07-11-2003
US 4611244 A	09-09-1986	DE 3217884 A1	09-12-1982
		JP 1726740 C	19-01-1993
		JP 4004563 B	28-01-1992
		JP 57186872 A	17-11-1982
		US RE33830 E	25-02-1992
JP 2003262786 A	19-09-2003	NONE	